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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,233	05/11/2001	Steven T. Harshfield	MICS:0061	5984

7590 02/18/2003

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EXAMINER
COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 02/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Case transferred to Tom D'Amico

DETAILED ACTION

1. The indicated allowability of claims 8-16 is withdrawn in view of the newly discovered reference(s) to Kozicki et al., U.S. Publication No.: US 2002/0168820 A1. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 42, 43 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Kozicki et al., U.S. Patent Application Publication No.: US 2002/0168820 A1.

4. Kozicki discloses a semiconductor device as claimed. See FIGS. 1-29.

5. Pertaining to claims 1, 8, 11 and 16 Kozicki teaches a memory cell comprising:

a first line **100** formed over a substrate, the first line being formed of a first conductive material (i.e., tungsten, nickel, molybdenum, platinum or metal silicides);

a layer of a second conductive material **160** disposed over the first line, the second conductive

material being different from the first conductive material (silver iodide);

a layer of chalcogenide material **140** disposed over the layer of the second conductive

material; and

a second line **120** formed over the layer of chalcogenide material.

6. Pertaining to claims 2 and 32, Kozicki teaches the memory cell, as set forth in claim 1, wherein the first line is embedded in the substrate.

Pertaining to claims 3 and 33, Kozicki teaches the memory cell, as set forth in claim 1, wherein the first line is disposed in a window formed in a dielectric layer **150** disposed over the substrate.

7. Pertaining to claims 5 and 12, Kozicki teaches the memory cell, as set forth in claim 1, wherein the layer of a second conductive material is deposited on the first line using an immersion plating technique (please note that there is no patentable weight given to the process since these are product by process claims and only the product will be examined).

8. Pertaining to claims 6 and 13, Kozicki teaches the memory cell as set forth in claim 1, wherein the second conductive material comprises at lest one of silver and gold.

9. Pertaining to claims 7 and 20, Kozicki teaches the memory cell as set forth in claim 1, wherein the chalcogenide material comprises germanium selenide having ions of the second conductive material therein.

10. Pertaining to claim 9, Kozicki teaches the memory cell as set forth in claim 8, wherein the first line is embedded in the substrate.

11. Pertaining to claim 17, Kozicki teaches the memory cell, as set forth in claim 16, wherein the first line is embedded in the substrate.

12. Pertaining to claim 18, Kozicki teaches the memory cell, as set forth in claim 16, wherein the first line is disposed in a window formed in a dielectric layer disposed over the substrate.

13. Pertaining to claims 21, 24 and 25, Kozicki teaches a memory cell comprising:

a first layer of dielectric material disposed over a substrate, the first layer of dielectric

material having a first window therein;

a first line disposed in the first window, the first line being formed of a first conductive

material that comprises one of aluminum, copper, nickel and tungsten;

a second layer of dielectric material disposed over the first layer of dielectric material and

over the first line, the second layer of dielectric material having a second window therein, the second window exposing at least a portion of the first line;

layer of a second conductive material disposed in the second window over the first line, the second conductive material being different from the first conductive material;

layer of chalcogenide material disposed in the second window over the layer of the

second conductive material; and

second line formed over the layer of chalcogenide material.

14. Pertaining to claim 23, Kozicki teaches the memory cell, as set forth in claim 2 1, wherein the layer of a second

conductive material is deposited on the first line using an immersion plating technique.

15. Pertaining to claims 26 and 29, Kozicki teaches a memory cell comprising:

a first layer of dielectric material disposed over a substrate, the first layer of dielectric material having a first window therein; a first line disposed in the first window, the first line being formed of a first conductive material that comprises one of aluminum, copper, nickel and tungsten;

a second layer of dielectric material disposed over the first layer of dielectric material and over the first line;

first layer of conductive material disposed over the second layer of dielectric material, the first layer of conductive material; and the second layer of dielectric material having a second window therein, the second window exposing at least a portion of the first line;

a layer of a second conductive material disposed in the second window over the first line, the second conductive material being different from the first conductive material;

a layer of chalcogenide material disposed in the second window over the layer of the

second conductive material that comprises one of aluminum, copper, nickel and tungsten; and

a second line formed over the layer of chalcogenide material and over the first layer of conductive material.

16. Pertaining to claim 28, Kozicki teaches the memory cell, as set forth in claim 26, wherein the layer of a second

conductive material is deposited on the first line using an immersion plating technique.

17. Pertaining to claim 30, Kozicki teaches the memory cell, as set forth in claim 26, wherein the chalcogenide material comprises germanium slenide having ions of the second conductive material therin.

18. Pertaining to claim 31, Kozicki teaches a memory comprising:

a memory array having a plurality of memory cells, each of the memory cells comprising:

a first line formed over a substrate, the first line being formed of a first conductive

material that comprises one of aluminum, copper, nickel and tungsten; a layer of a second conductive material disposed over the first line, the second

conductive material being different from the first conductive material;

a layer of chalcogenide disposed over the layer of the second conductive material;

and a second line formed over the layer of chalcogenide.

19. Pertaining to claim 32, Kozicki teaches the memory cell, as set forth in claim 3 1, wherein the first line is embedded in the substrate.

20. Pertaining to claim 33, Kozicki teaches the memory cell, as set forth in claim 31, wherein the first line is disposed in a window formed in a dielectric layer disposed over the substrate.

21. Pertaining to claim 35, Kozicki teaches the memory cell, as set forth in claim 31, wherein the layer of a second conductive material is deposited on the first line using an immersion plating technique.

22. Pertaining to claim 38, Kozicki teaches an electronic device comprising:

a processor; a memory operatively coupled to the processor, the memory comprising a memory array having a plurality of memory cells, each of the memory cells comprising:

a first line formed over a substrate, the first line being formed of a first conductive material that comprises one of aluminum, copper, nickel and tungsten; a layer of a second conductive material disposed over the first line, the second conductive material being different from the first conductive material;

a layer of chalcogenide disposed over the layer of the second conductive material; and

a second line formed over the layer of chalcogenide.

23. Pertaining to claim 39, Kozicki teaches the memory cell, as set forth in claim 38, wherein the first line is embedded in the substrate.

24. Pertaining to claim 40, Kozicki teaches the memory cell, as set forth in claim 38, wherein the first line is disposed in a window formed in a dielectric layer disposed over the substrate.

25. Pertaining to claim 42, Kozicki teaches the memory cell, as set forth in claim 38, wherein the layer of a second conductive material is deposited on the first line using an immersion plating.

Objections

26. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

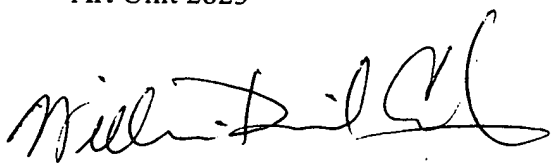
27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004. The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

W. David Coleman
Examiner
Art Unit 2823

WDC
February 13, 2003



Form PTO-1449 (modified)	ATTY. DOCKET NO. MICS:0061/FLE (00-0535)	SERIAL NO. Unassigned
List of Patents and Publications For Applicant's Information Disclosure Statement	APPLICANT Steven T. Harshfield et al.	
(Use several sheets if necessary)	FILING DATE Herewith	GROUP Unassigned

U.S. PATENT DOCUMENTS

EXAM. INIT.	REF. DES.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

EXAM. INIT.	REF. DES.	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION

OTHER ART

(Author, Title, Journal, Volume, Pertinent Pages, & Date)		
	1	Jacques Coderre; Electroless Ni/Au and Process Control; Process Control; Printed Circuit Fabrication 1978-1998; pgs. 42-46.
	2	Don Cullen; Electroless Nickel/Immersion Gold; Ni/Au; Printed Circuit Fabrication 1978-1998; pgs. 32-39.
	3	Jean W. Chevaiier; Electroless Gold Plating; pgs. 323-325.
EXAMINER		DATE CONSIDERED 8/13/03

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Information Disclosure Statement--PTO-1449 (Modified)

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities – 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

Form PTO-948 (Rev. 03/01) U.S. DEPARTMENT OF COMMERCE - Patent and Trademark Office Application No. 09/853,233

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

The drawing(s) filed (insert date) 05/11/01 are:

A. ☐ approved by the Draftsperson under 37 CFR 1.84 or 1.152.

B. ☑ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawing must be sumitted according to the instructions on the back of this notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings: Black ink. Color.
   - ___ Color drawings are not acceptable until petiton is granted. Fig(s) _____
   - ___ Pencil and non black ink not permitted. Fig(s) _____
2. PHOTOGRAPHS. 37 CFR 1.84(b)
   - ___ 1 full-tone set is required. Fig(s) _____
   - ___ Photographs may not be mounted. 37 CFR 1.84(e)
   - ___ Poor quality (half-tone). Fig(s) _____
3. TYPE OF PAPER. 37 CFR 1.84(e)
   - ___ Paper not flexible, strong, white, and durable. Fig(s) _____
   - ___ Erasures, alterations, overwritings, interlineations, folds, copy machine marks not accepted. Fig(s) _____
   - ___ Mylar, velum paper is not acceptable (too thin). Fig(s) _____
4. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes:
   - ___ 21.0 cm by 29.7 cm (DIN size A4)
   - ___ 21.6 cm by 27.9 cm (8 1/2 x 11 inches)
   - ___ All drawing sheets not the same size. Sheet(s) _____
   - ___ Drawings sheets not an acceptable size. Fig(s) _____
5. MARGINS. 37 CFR 1.84(g): Acceptable margins:

   Top 2.5 cm Left 2.5cm Right 1.5 cm Bottom 1.0 cm SIZE: A4 Size

   Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm SIZE: 8 1/2 x 11

   Margins not acceptable. Fig(s) _____

   _____ Top (T) _____ Left (L)

   _____ Right (R) _____ Bottom (B)
6. VIEWS. 37 CFR 1.84(h)

   REMINDER: Specification may require revision to correspond to drawing changes.

   Partial views. 37 CFR 1.84(h)(2)
   - ___ Brackets needed to show figure as one entity. Fig(s) _____
   - ___ Views not labeled separately or properly. Fig(s) _____
   - ___ Enlarged view not labeled separetely or properly. Fig(s) _____
7. SECTIONAL VIEWS. 37 CFR 1.84 (h)(3)
   - ___ Hatching not indicated for sectional portions of an object. Fig(s) _____
   - ___ Sectional designation should be noted with Arabic or Roman numbers. Fig(s) _____
8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)
   - ___ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____
9. SCALE. 37 CFR 1.84(k)
   - ___ Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction. Fig(s) _____
10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(i)
    - ✓ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Fig(s) 1-19
11. SHADING. 37 CFR 1.84(m)
    - ___ Solid black areas pale. Fig(s) _____
    - ___ Solid black shading not permitted. Fig(s) _____
    - ___ Shade lines, pale, rough and blurred. Fig(s) _____
12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)
    - ___ Numbers and reference characters not plain and legible. Fig(s) _____
    - ___ Figure legends are poor. Fig(s) _____
    - ___ Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____
    - ___ English alphabet not used. 37 CFR 1.84(p)(2) Figs _____
    - ___ Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig(s) _____
13. LEAD LINES. 37 CFR 1.84(q)
    - ___ Lead lines cross each other. Fig(s) _____
    - ___ Lead lines missing. Fig(s) _____
14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(t)
    - ___ Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Sheet(s) _____
15. NUMBERING OF VIEWS. 37 CFR 1.84(u)
    - ___ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____
16. CORRECTIONS. 37 CFR 1.84(w)
    - ___ Corrections not made from prior PTO-948 dated _____
17. DESIGN DRAWINGS. 37 CFR 1.152
    - ___ Surface shading shown not appropriate. Fig(s) _____
    - ___ Solid black shading not used for color contrast. Fig(s) _____

COMMENTS

REVIEWER Draftsman: Son Lam (703)308-0366 DATE 02/13/03 TELEPHONE NO. _____

ATTACHMENT TO PAPER NO. _____

Notice of References Cited	Application/Control No. 09/853,233	Applicant(s)/Patent Under Reexamination HARSHFIELD ET AL.	
	Examiner W. David Coleman	Art Unit 2823	Page 1 of

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2002/0168820	11-2002	Kozicki et al.	438/259
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.